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WESTON·SPER Suite 3, 5090 Central Highway, Pennsauken, NJ 08109 • (609) 663-7995

TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION
EPA CONTRACT 68-01-6669

MEMORANDUM

TO: Jerry Saseen, OSC, U. S. EPA, Region III PCS#: 5261

THRU: Richard Habrukowich, TATL, Region III

FROM: Mark Tucker, TAT, Region III

SUBJECT: Metcoa Magnetic Survey

DATE: September 15, 1986

A magnetic survey was conducted by the WESTON TAT at the Metcoa Site on July 9, 1986. The survey was conducted over an area of approximately 0.5 acres located just west of the fence which surrounds the facility. This area was suspected of containing buried drums because of the disturbed nature of the soil and the presence of several crushed drums and drum lids.

The magnetic survey was conducted using a portable proton magnetometer. Over 400 individual measurements of the earth's total magnetic field were taken along an established grid. The grid was left marked in the field with wooden stakes. Magnetic measurements were taken at 10-foot intervals along north-south traverses spaced 10 feet apart. A survey of this design can easily detect a single drum buried to a depth of 20 feet, and the location of large clumps of drums can be well defined.

A magnetic contour map of the data is given in Figure 1. The magnetic data for the most part is not typical of that produced by drum-filled trenches or pits. Several crushed drums and drum lids were observed in the survey area, however, and it is likely that buried drums are indeed present. In particular, two locations within the survey area have been identified which are most likely to contain buried drums.

Several different types of buried metallic objects can be identified from the magnetic data and are described below. The locations of the various anomly producers are shown in Figure 2.

Type A Anomalies: Dense Metallic Objects

The surveyed area contains a number of localized intense magnetic highs produced by dense iron-bearing objects. These anomalies are much too large to be produced by buried drums alone. The magnetic data indicates the presence of several buried objects weighing somewhere in the neighborhood of 1,000 - 2,000 pounds and measuring less than 10 feet across. Considering that this is a

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metal recycling facility, these intense anomalies could be due to drums filled with iron-bearing slag which have been heated as a unit to a point where they have attained a uniform magnetism. These could also be due to any other dense iron or steel objects which fit the above description.

Type B Anomalies: Erratic Highs and Lows

The area surveyed was observed to contain a large amount of iron-bearing slag. This brownish-red material occurs throughout much of the disturbed ground of the survey area. The slag is suspected to be responsible for much of the erratic distribution of magnetic highs and lows found on the contour map.

Type C Anomalies: Suspected Drum Burial Areas

At two locations within the survey area the magnetic data is typical of that found over buried drums. One area is in the extreme northwest corner of the survey area, the other is in the southwest corner (see Figure 2).

The anomaly in the southwest corner of the survey area is centered above a low mound (2 - 3 feet high). Fifteen to twenty drums buried at a shallow depth would produce an anomaly of the type found there. Fifty to seventy drums would produce an anomaly similar to that found at the extreme northwest corner of the survey area. Crushed drums were observed at both of these locations and give further evidence that buried drums may be present.

Buried drums may be present throughout other parts of the survey area, but a reliable interpretation to that effect is obscured by the overriding dominance of the other iron-bearing materials present. The magnetic contour map is dominated by the intense anomalies of the dense objects (Type A Anomalies) and the erractic anomalies due to the slag (Type B Anomalies).

Summary and Recommendations

The magnetic data suggests that buried drums may be present at two locations within the survey area shown in Figure 2. Buried drums may also be present beneath much of the remainder of the disturbed ground of the survey area, but the slag and dense metallic objects present interfere significantly with their detection.

The most direct method of verifying the presence of drums would be to excavate exploratory trenches in the areas indicated in Figure 2.

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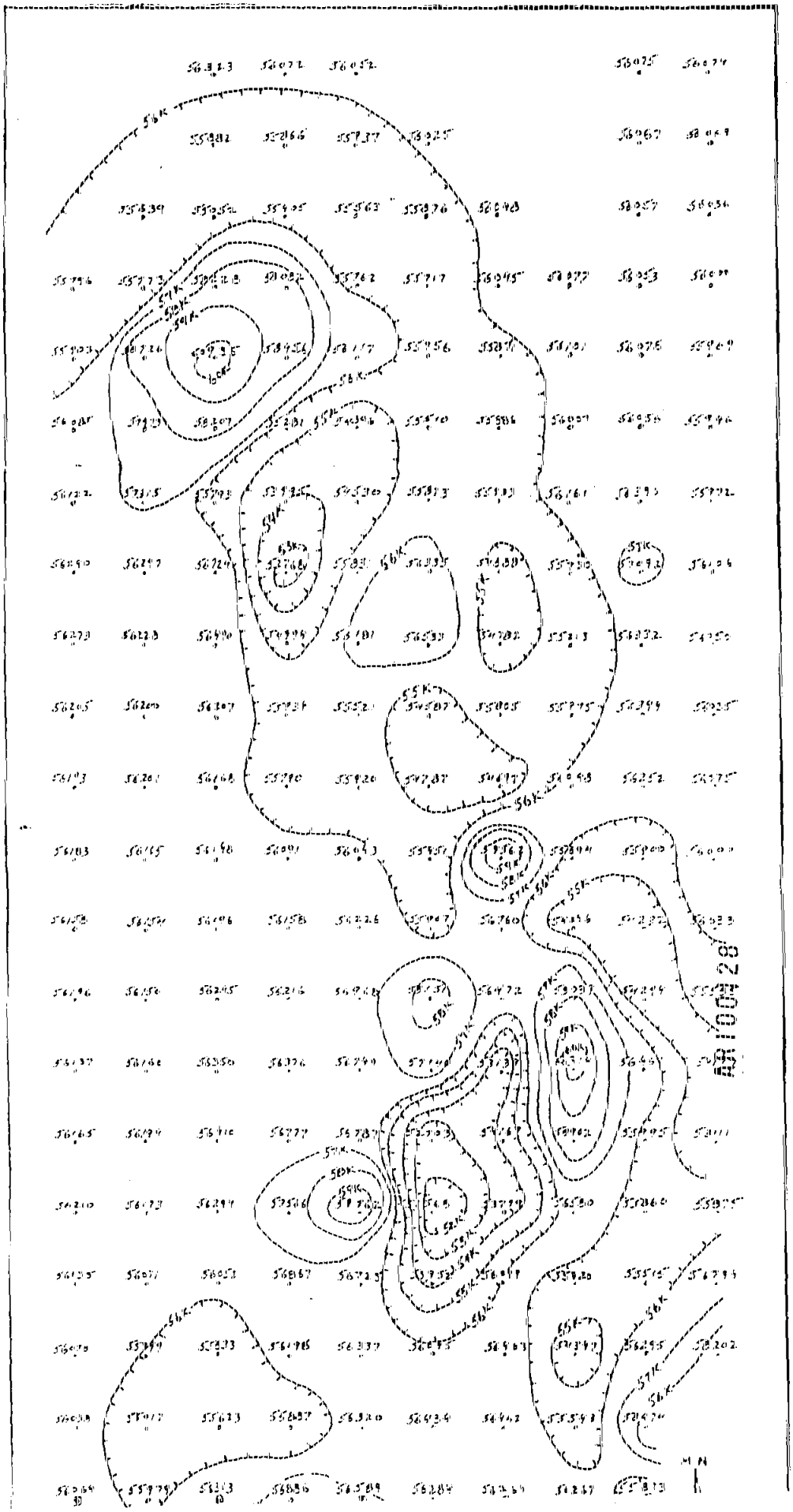
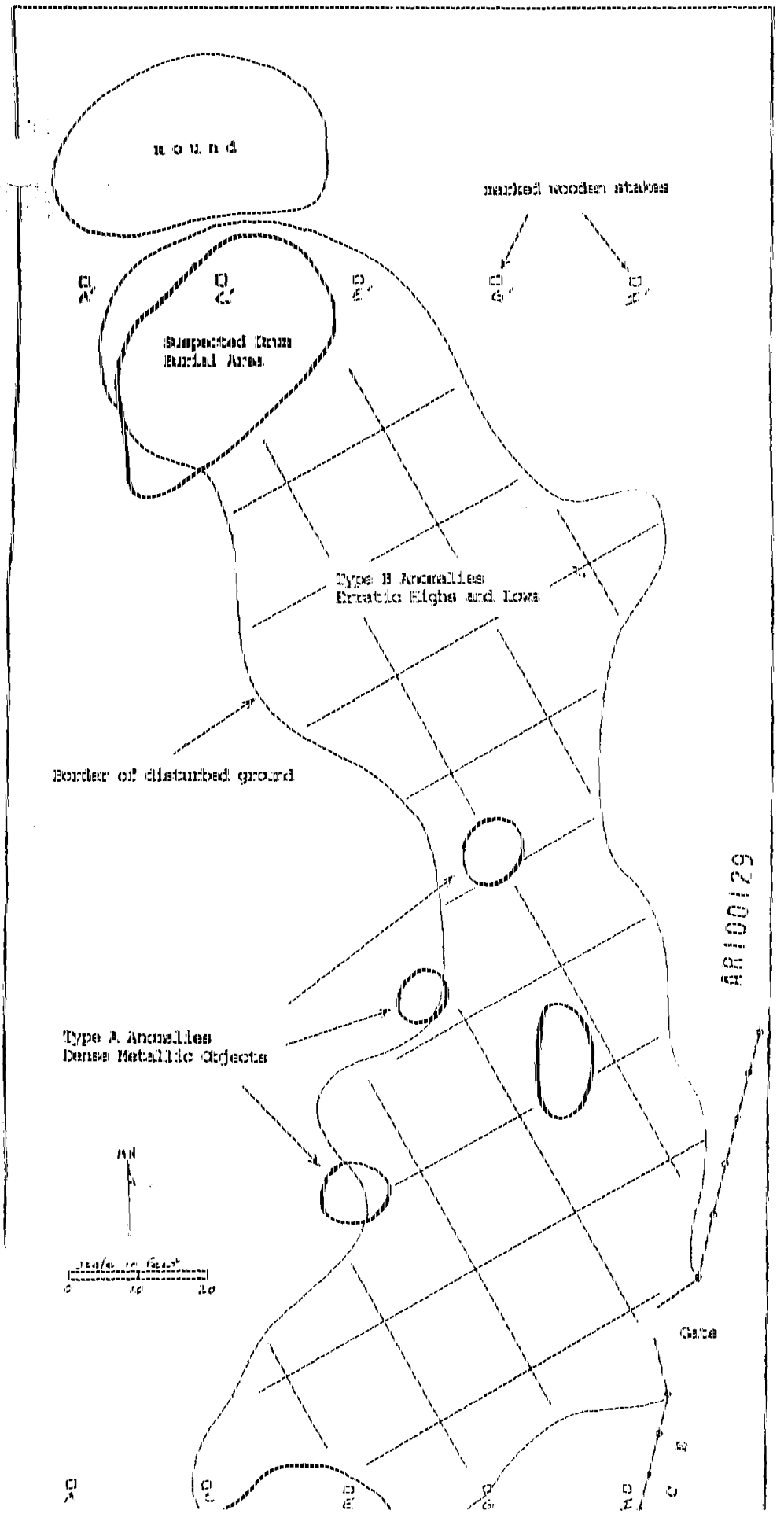
Attachments: Figure 1: Metcoa Site Magnetic Contour Map
Figure 2: Metcoa Site Interpretation of Magnetic Data




mound
marked wooden stakes
Suspected Drum Burial Area
Type B Anomalies
Erratic Highs and Lows
Border of disturbed ground
Type A Anomalies
Dense Metallic Objects
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